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When three eggs had been laid the female was killed, a few feathers found near the nest suggesting a cat as the probable murderer. The male, however, remained in the vicinity for several weeks, singing at times continuously for an hour or more; but apparently becoming discouraged at the non-appearance of his mate, he finally disappeared. Not another bird of this species was observed until May, 1884, when a pair was seen in the same garden and observed constructing a nest in a rose bush. Here they were undisturbed until their young, four in number, were nearly ready to leave the nest; these young were then taken and successfully raised in confinement. April 17, 1885, a Mockingbird, presumably the male, was seen in the same locality; later its mate appeared. The male was frequently heard singing, and although the nest was not found, young birds were seen, and there is little doubt that this time they succeeded in raising their brood. So far as I have been able to ascertain the birds have not been observed in the locality since this last-mentioned occurrence.

16. *Harporhynchus rufus*. BROWN THRASHER.—An individual of the species was taken January 31, 1885.

17. *Thryothorus ludovicianus*. CAROLINA WREN.—A bird of this species was observed by me September 20, 1885, in a low wet wood, and presumably the same individual was frequently seen or heard in the same locality until November 20, when an examination showed it to be a male of the year. I have also records of single birds observed on April 24, 1886, and September 22 of the same year.

18. *Parus bicolor*. TUFTED TITMOUSE.—August 19, 1888, I secured a male of the year of this species. On at least two previous occasions I have seen or heard single individuals in the same wood in which the one above recorded was captured.

19. *Poliophtila cærulea*. BLUE-GRAY GNATCATCHER.—Mr. John G. Bell, the well known naturalist-taxidermist, informed me during a recent visit I had the pleasure of making him that he had taken an individual of this species near his home at Piermont, N. Y., in March—the year he could not remember.

NOTES ON THE BLUE-WINGED WARBLER AND ITS ALLIES (*HELMINTHOPHILA PINUS*, *H.* *LEUCOBONCHIALIS*, *H. LAWRENCEI*, AND *H. CHRYSOPTERA*) IN CONNEC- TICUT.

BY EDWIN H. EAMES.

I TAKE pleasure in recording my experience with a few of the *Helminthophila* in southern Connecticut during the season of 1889, inasmuch as their matrimonial affairs have become in-

tricately involved and highly perplexing. The geographical seat of the trouble seems to be centred in the small State of Connecticut and the country adjoining on the north and west.

Our little favorite *Helminthophila pinus* is probably as abundant in the southern part of this State, and in the river valleys northward to Massachusetts, as in any other part of its range, it extending its way still further north to a point as yet but poorly defined.

Of *H. chrysoptera* but little can be said, as it is properly considered a rather rare bird here, and our yearly records are but few, usually less than half a dozen.

The beautiful *H. leucobronchialis* is much (?) more common than the latter, and is eagerly sought after by most of our collectors, latterly with good success, considering its former (supposed) rarity. The section of country above accorded to *pinus* seems to be the metropolis of this species, or else we have here more enthusiastic collectors. The same is also true of *H. lawrencei*. My observations last year served to acquaint me with its traits of character and style of song, so that on the 6th of May I was prepared to recognize the song of *leucobronchialis*, when I heard it. It was a typical bird, and was first heard and then seen in an apple tree whose branches almost touched a house. It was so tame at first that I could almost catch it in a hand net, and although it was several times disturbed, showed no desire to feed in other than apple trees.

My earliest record of *H. pinus* was made on the following day, but on the 9th they were surprisingly common, as at one time (midday) I distinctly heard seven singing at one time, and could see five by merely turning around. During a walk of a few hours that day I counted 60, which was considerably short of the actual number seen. Judging from a few I shot and from others I critically examined, and from their songs, they were all males, the first female not appearing until the second day following. I have never before seen as many in the same length of time, but for years have considered them common, even fifteen miles north of Bridgeport.

The only *H. chrysoptera* I have seen this season was a male I killed on May 14, in full song; I killed also a male *H. leucobronchialis* on the same morning, also in full song. One bright male *H. lawrencei* found its way into my collection, May 16, after

favoring me with its song and a little of its shyness for an hour or two. This bird was in a small but dense swamp, and kept among the higher branches in the centre, with occasional forays to the edge.

May 17 I badly wounded a third *leucobronchialis*, which was not secured, although I closely marked where it fell. It was well marked with yellow on the fore-breast and a paler wash elsewhere except on the lower throat which was pure white; otherwise it was typical.

May 21 I saw another *leucobronchialis* which was beyond my reach, being under the immediate protection of a guardian of the City water works. Having obtained his permission to shoot it, the following morning it fell a prey to my desires, and proved to be a very handsome specimen of this form. Not until June 11 did I take another, which proved to much resemble *pinus*.

Mr. C. K. Averill, Jr., of this city, found a *leucobronchialis* early in June, he being attracted to it by its song. Two days later he failed to find it. June 24 I accompanied him to the place and we soon had the pleasure of watching the bird at shorter range than I think has fallen to the lot of others, *i. e.*, three to ten feet, for so long a time that our patience gave out with the daylight. Previous to this it was necessary to watch his actions at a greater distance, as he (for it proved a male) was feeding young, how many we never ascertained, probably but one.

It came to the same conspicuous clump of bushes and briars many times, with from one to five minutes intermission, each time with one or more small green worms, about three quarters of an inch long, first reconnoitring, then cautiously approaching, and again hastily leaving a part of this clump of bushes not over two feet in extent. We failed to discover the identity of the object of its cares, but I have reason to believe it was a young Cowbird. The rest of this brood was being fed by the only *H. pinus* (a female) to be found in the neighborhood. These young were, I thought, a little too demonstrative when parental attention was bestowed upon them. At this date they could fly well, and gleaned much food for themselves. They showed a marked general similarity to the young of *pinus*. I shot this male *leucobronchialis* August 8 and also one of the young, carefully observing that the others were similar to the one killed, which was altogether too familiar with the adult bird to allow a possibility of doubt concerning its male parent.

In this, as in many other species of our smaller birds, such an affection is shown for the haunts occupied during the nesting period that they rarely leave them until after moulting, or even till the commencement of the fall migration. In the above case I never failed to find the birds within the bounds of a two-acre tract of land.

Some of the characteristics of these species and varieties may be of interest, and I will confine myself to the past two years' observations in Bridgeport and Seymour.

On their arrival, which occurs in the second week of May, they (*lawrencei*?) show a great fondness for orchards, chiefly apple, feeding among the blossoms in a manner so leisurely as to be very unlike that of other Warblers, being expressive of a serene content. In numberless instances I have known single birds to remain in one tree upwards of an hour, and then seem to regret leaving it for another.

From the 15th to the 20th of May they become settled for the season in well-defined haunts, which may be broadly said to be adjoining woods in a clearing on which is much 'scrub,' or perhaps a three to five years' growth of 'sprouts,' with some grass, briars, etc. This frequently, but not always, adjoins swampy ground. They are rarely to be found in deep woods, except on the edge, where they spend much time among the higher branches.

When the nest of *H. pinus* contains eggs, it is difficult to find, as the male ranges over quite an area. The nest is as conspicuous and bulky as a Maryland Yellow-throat's. It is variously situated—in the edge of a thicket, at the foot of a brier, etc., or quite as often in a clump of golden-rod (*Solidago*). I have seen one nest, with young, placed on a bog in the edge of swampy woods. This bog was surrounded by eight inches of water.

Normally the nest rests but lightly on the ground, and measuring about four and a half inches deep externally, depends largely on surrounding grasses for concealment, fallen leaves being inconspicuous about it. The full complement of four or five eggs has generally been completed by June 1, and I have seen young ready to leave the nest by June 10.

I have been strongly impressed with the necessity of learning the songs of these birds, inasmuch as a large share of my success hangs on this very point. In all, the *z* sound is a strong feature and very characteristic.

The song of *H. chrysoptera* consists normally of four notes—*shree-e-e*, *zwee*, *zwee*, *zwee*,—the first, about two notes higher than the following three, being slightly prolonged. It is varied somewhat at times, with the second note like the first; again it is reduced to three, two, or even a single note. The song will immediately attract attention from its very oddity. By some it is considered harsh, but to me it has a soft penetrating quality unexcelled, this effect being heightened by the uncertain source of the song.

Seven birds, typical of *H. leucobronchialis*, expressed their good spirits by precisely the song of the preceding (*H. chrysoptera*) except in one trifling point. Another, with a bright yellow breast-patch, had, in addition, a few original variations of its own. Still another, with a close resemblance to *H. pinus*, repeated songs of *H. chrysoptera* only, but they were all harsh and disagreeable in comparison. This bird was shot almost within a stone's throw of the supposed nesting site of *H. leucobronchialis* spoken of in 'The Auk' (Vol. V, pp. 427-428). A perfectly typical bird repeated but one style of song. This surprised me greatly, it being precisely the same as the common song of *H. pinus*. I heard this many times on two different occasions before shooting the bird, and it was always the same. But one more bird, with a faint greenish yellow color on the back, a strong patch of yellow on the breast, and a wash elsewhere on the under parts, used the latter song exclusively.

The only *H. lawrencei* I ever knowingly listened to, as before mentioned, favored me with its song for nearly two hours, and during the several hundred repetitions, it never varied in the least particular from the characteristic song of *H. pinus*, its song consisting of two drawling notes, *see-e-e-e*, *zwee-e-e-e*, with a very decided *z* sound. The first series is somewhat higher pitched than the last and hardly as long continued. To this, in *H. pinus* only, is sometimes added a third note of about the same length as the first, and very similar. Occasionally the first note only is uttered. When there are three, the second is sharply and quickly given. Another song quite often heard is strikingly similar to that of the Nashville Warbler, but still retains enough of its own peculiar sound to make identification positive in every case. Of several other songs, none of which are commonly heard, one is best represented by *swee-e-e*, *kik*, *kik*, *kik*, *kik*.

The following were characteristic of certain birds only and noted to be the same on several different occasions. One bird regularly repeated the trill of the Chipping Sparrow after its own, with no variations unless slightly shortened. *Two* others were often heard to repeat a song reminding me strongly of one of the Parula Warbler's, but they repeated their own much more frequently than this.

During the height of the season *H. pinus* may be heard repeating its song with great regularity from four to five times per minute, by the hour, with scarcely a break. This is to be noticed during the extreme heat of midday just the same as at other times, its search for insects being at the same time uninterrupted. I have quite often heard them during hard showers, not an occasional repetition merely, but with a persistent regularity. This applies to *H. leucobronchialis*, and presumably to *H. chrysoptera* as well, except that in the two latter only two or three repetitions per minute is the rule. Nearly two entire songs of the latter *can* be rendered in the time occupied by *H. pinus* for one. In many of these birds there is a tendency to extreme shyness upon the slightest attempt at familiarity, and often without any provocation, as I have many times been made aware. On many occasions my best endeavors have been unequal to the task of closely scrutinizing the author of any of these songs unless I had the patience to watch him from one to three hours, and even then a field glass would be necessary to see him clearly.

Even *H. pinus* may be called rare by those who possess excellent eyesight, provided they have ears poorly trained, and I will venture the assertion that nine out of every ten birds will escape them. I have more than once seen proof of this in those who were desirous of becoming well acquainted with the species.

LIST OF THE BIRDS OF FULTON COUNTY, KENTUCKY.

BY L. OTLEY PINDAR.

FULTON COUNTY lies in the extreme southwestern corner of Kentucky. Nearly all the notes from which this list is composed